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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/529,135

03/23/2005

Yun-Hyun Cho

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2558

41943

7590

10/19/2006

EXAMINER

JACOBS, DUSTIN THOMAS

GWIPS

PETER T. KWON

P.O. BOX 231630

CENTERVILLE, VA 20120

ART UNIT

PAPER NUMBER

2112

DATE MAILED: 10/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/529,135

Applicant(s)

CHO, YUN-HYUN

Examiner

Dustin Jacobs

Art Unit

2112

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 March 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 10-2002-0059987, filed on 9/27/2002.

Drawings

2. Figures 1-3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 3a, 9, and 13. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet,

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even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

4. Claims 1-10 are objected to because of the following informalities:

In claims 1 and 5, "a rotor" in line 7, is to be understood by the examiner as "said rotor." A "circle flat rotor frame" in lines 7 and 8, is stated unclearly and it is to be understood by the examiner as a "flat circular rotor frame." In claim 5, the examiner does not know if "the teeth core" in line 9 and "a plurality of teeth cores" in line 9 is referring to the stator or rotor, and it is to be understood by the examiner that "the teeth core" in line 7 is to be "the stator teeth core" and "a plurality of teeth core" in line 7 is referring to the rotor. As well, "... which faces said teeth core" is unclear and it is to be understood by the examiner as "... which faces said stator teeth core."

In re claims 2 and 6, "a teeth core" in line 2 lacks antecedent basis and it is to be understood by the examiner as "said teeth core." "A stator core" in line 2 lacks antecedent basis and it is to be understood by the examiner as "said stator core." A "stator core circle" in line 4 is stated unclearly and it is to be understood by the examiner as "said stator core." The sentence portion, "... a constant thickness which is consisted

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of a number of teeth core" in line 5, is to be understood by the examiner as "... a constant thickness, which **consists** of a number of **teeth**."

In re claim 3, "magnets" in line 1 lacks antecedent basis and it is to be understood by the examiner as "said magnets." "Teeth core" in line 2 lacks antecedent basis and it is to be understood by the examiner as "said teeth core."

In re claim 4, "a plurality of stators" in line 2 lacks antecedent basis and it is to be understood by the examiner as "said plurality of stators."

In re claim 7, "a teeth core" in line 2 lacks antecedent basis and it is to be understood by the examiner as "said teeth core." "A short circuit ring" in lines 2 and 3 lacks antecedent basis and it is to be understood by the examiner as "said short circuit ring."

In re claims 8-10, "a plurality of stators" in lines 3 and 2 respectively lacks antecedent basis and it is to be understood by the examiner as "said plurality of stators." "Said magnets" is not mentioned claim 5 and lacks antecedent basis, since said magnets were never specified; thus, "said magnets" is to be understood by the examiner as "said induction motor."

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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6. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Jermakian et al. (US Patent No. 6,137,203).

Jermakian et al. '203 teaches the following claim elements:

In re claim 1,

- Housing (71A, 71B, 71C, Fig. 7) supporting a rotor (72, Fig. 7) through an assembly of a plurality of stators (10', Fig. 5 and Fig. 7).
- Stator (10', Fig. 5 and Fig. 7) having a ring type laminated flat structured stator core (30, Fig. 5; col. 10, lines 29-32).
- A plurality of teeth cores (38, Fig. 1 and Fig. 5) having winding coil (12, Fig. 1), which are slotted constantly around the inner or outer circumference of stator (10', Fig. 5 and Fig. 7).
- Rotor frame (72, Fig. 7) with a plurality of magnets (74, Fig. 7; col. 13, lines 34-36) fixed on a rotor shaft (104, Fig. 7) through a bearing (76, Fig. 7).

In re claim 2,

- Laminated flat core structure of teeth core (30, Fig. 5; col. 10, lines 18-21).
- Stator core (30, Fig. 5) with multi slots (36, Fig. 5; col. 11, lines 16-18) with a constant distance around the circumference of stator (10', Fig. 5 and Fig. 7).
- Teeth core (38, Fig. 1 and Fig. 5) having a number of teeth (38, Fig. 5) and constant thickness.

In re claim 3,

- Magnets (74, Fig. 7) have even number of magnetic poles (col. 9, lines 562-64; col. 11, lines 16-18).

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In re claim 4,

- Said plurality of magnets (74, Fig. 7) installed along the axial direction of the rotor (72, Fig. 7) facing against said plurality of stators (10', Fig. 5 and Fig. 7) in housing.

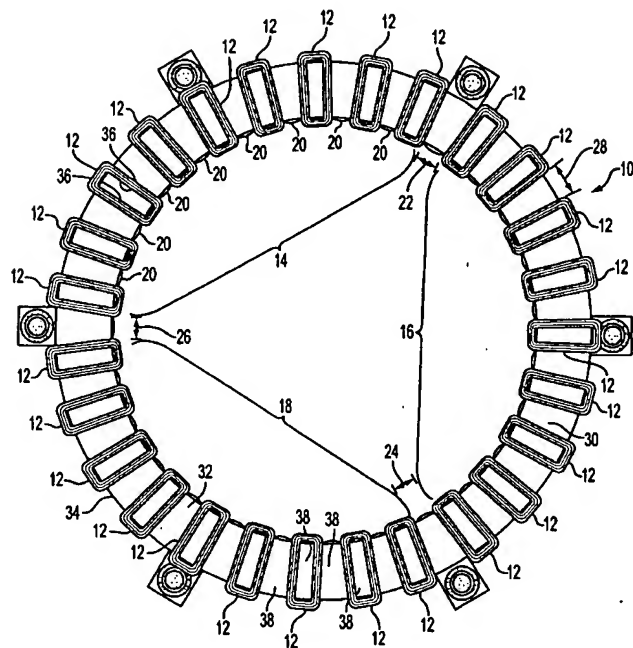


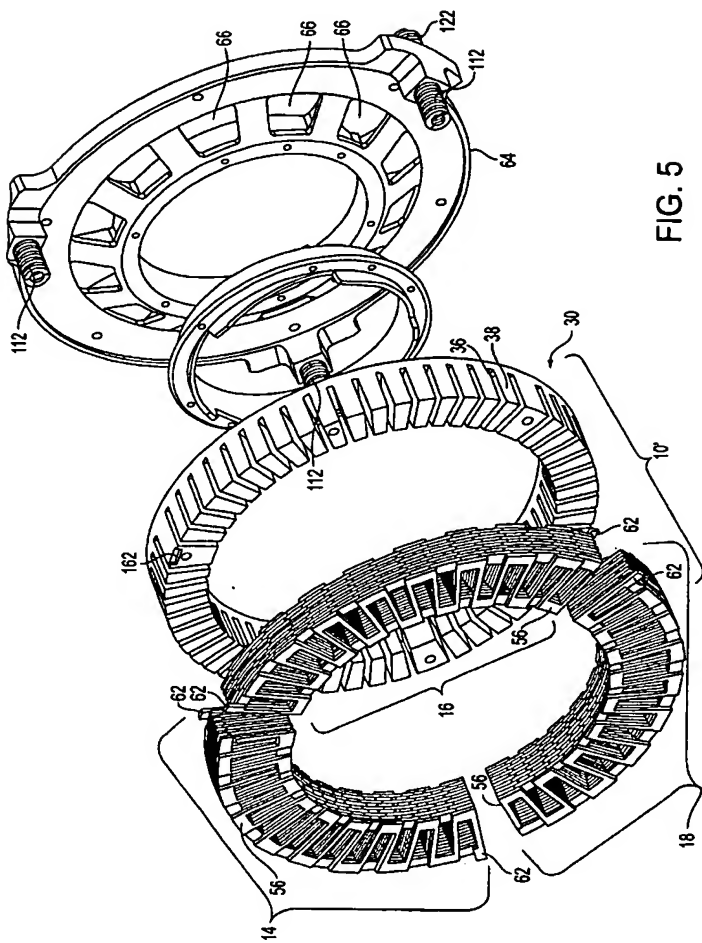
FIG. 1

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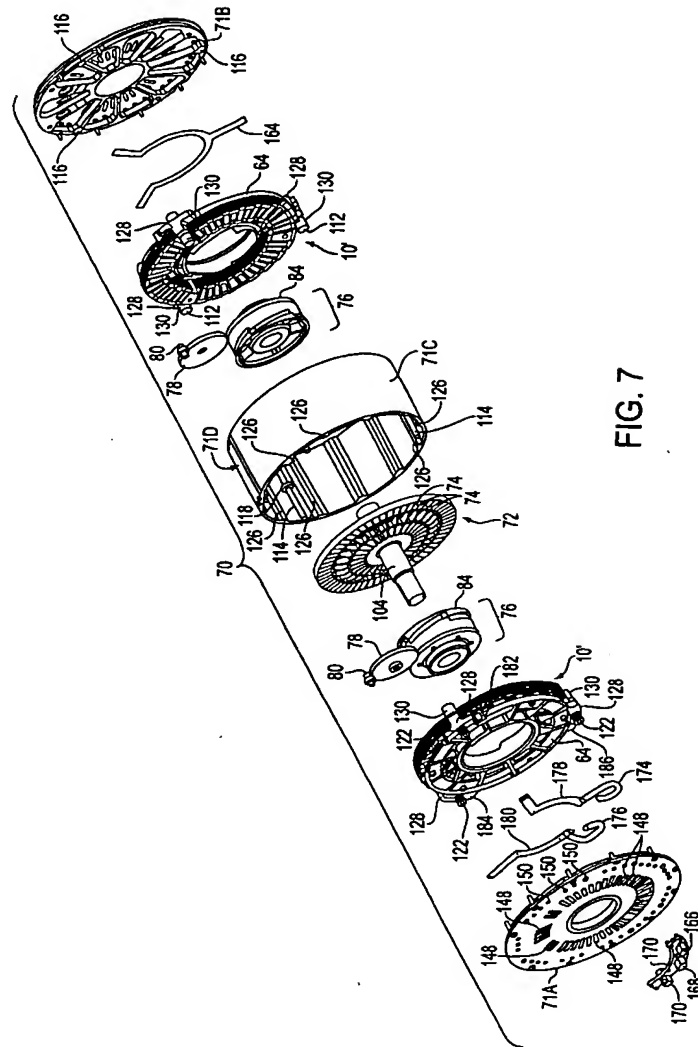


U.S. Patent

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6,137,203



Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 5-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jermakian et al. (US Patent No. 6,137,203) in view of Bakhuizen (US Patent No. 3,426,225). Jermakian et al. '203 has been discussed above, but Jermakian et al. '203 does not teach:

- Induction motor on rotor with a plurality of teeth core facing stator teeth core, which rotor teeth core are insulated by short circuit rings.
- Induction motor along the axial direction of the rotor with said plurality of stators (10', Fig. 5) facing against said induction motor with rotor teeth core.

Bakhuizen '225 teaches:

- An induction motor (5, Fig. 1) along the axial and radial (5, Fig. 1) direction of the rotor (5, Fig. 2) on a flat circular rotor frame (9, Fig. 2).
- Induction motor (5, Fig. 1) consisting of teeth core (6, Fig. 1) with a constant thickness facing against stator teeth core (7, Fig. 1) and insulated by short circuit rings (12-17, Fig. 1; col. 3, lines 45-48).
- A laminated rotor core (9, Fig. 2; col. 3, lines 44-45) with a short circuit ring (12-17, Fig. 1) insulated (col. 3, lines 57-61) between teeth core (6, Fig. 1).
- Rotor core (9, Fig. 1) consisting of multi slots (11, Fig. 1) with a constant distance around the inner circumference of said stator core as seen in Figure 1.

Feb. 4, 1969 A. J. C. BAKHUIZEN 3,426,225
SYNCHRONOUS STEP MOTOR INCLUDING MEANS FOR
PRODUCING ASTERCHERONOUS OPERATION
Filed Jan. 7, 1966 Sheet 1 of 5

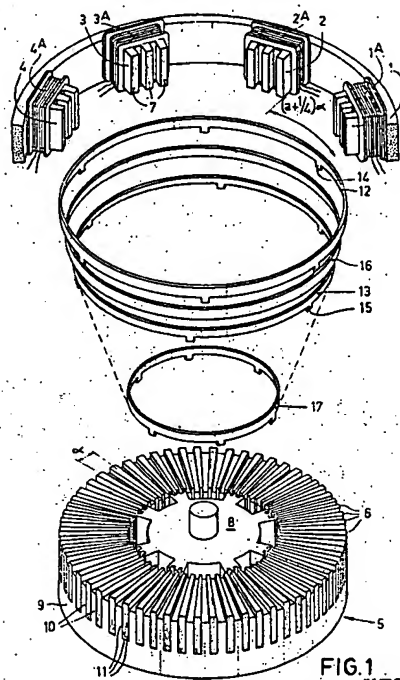


FIG. 1
INVENTOR
A. J. C. BAKHUIZEN
BY *[Signature]*
AGENT

Feb. 4, 1969 A. J. C. BAKHUIZEN 3,426,225
 SYNCHRONOUS STEP MOTOR INCLUDING MEANS FOR
 PRODUCING ASYNCHRONOUS OPERATION
 Filed Jan. 7, 1966 Sheet 2 of 5

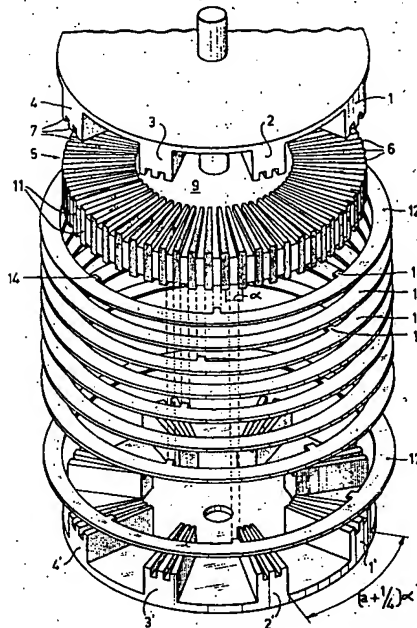


FIG. 2

INVENTOR
 ARIE J. C. BAKHUIZEN
 BY *[Signature]*
 AGENT

The advantage of Bakhuizen '225 short circuit rings (12-17, Fig. 1) and induction motor (5, Fig. 1) consisting of a plurality of rotor teeth (6, Fig. 1) is achieving high speed coarse positioning (col. 2, lines 1-3) and uniform torque (col. 1, lines 63-64) in the motor.

Jermakian et al. '203 discloses the claimed invention except for the induction motor with a plurality of teeth core. Bakhuizen '225 teaches that it is known to use an induction motor with a plurality of teeth core on the flat circular rotor frame. It would

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have been obvious to one having ordinary skill in the art at the time the invention was made to use an induction motor (5, Fig. 1) with a plurality of teeth core (6, Fig. 1) with a constant thickness which is insulated by short circuit rings (12-17, Fig. 1) on the rotor as taught by Bakhuizen '225, since Bakhuizen '225 states that such a modification would achieve high speed coarse positioning (col. 2, lines 1-3) and provide uniform torque (lines 63-64) in the motor.

In re claim 6, Jermakian et al. '203 discloses a laminated flat core structure of teeth core (30, Fig. 5; col. 10, lines 18-21), a stator core (30, Fig. 5) with multi slots (36, Fig. 5; col. 11, lines 16-18) with a constant distance around the circumference of stator (10', Fig. 5 and Fig. 7).

In re claim 7, Figure 1 of Bakhuizen '225 discloses a laminated rotor core (9) with a short circuit ring (12), in Figures 1 and 2, insulated (col. 3, lines 57-61) between teeth core (6) seen in Figure 1. Multi slots (11) in rotor core (9) with a constant distance around the inner circumference of said stator core as seen in Figure 1.

In re claims 8-10, Bazkhuizen '225 discloses an induction motor (5) in figure 1 along the axial direction of the rotor, as well as a plurality of stators (1-4) in the housing facing against the induction motor (5) in Figure 5.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Akemakou 6,093,992 discloses a rotor with excitation winding facing radially against a stator with a plurality of teeth. Hirzel US2006/0208606 discloses stator core with a plurality of teeth which have been wound by coil. Gauthier

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et al. 6,975,057 B2 discloses a stator with teeth/slots with windings facing radially against a rotor with a plurality of magnets. Kliman et al. 6,445,105 B1 discloses a rotor disk with at least one magnet facing axially against a stator with a plurality of teeth. Kakuta et al. US2002/0084715 discloses a stator with a plurality of stator windings facing against rotor magnets in the axial direction. Helwig 5,801,473 discloses a stator with teeth having windings facing a rotor with windings in the axial direction.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dustin Jacobs whose telephone number is 571-270-1429. The examiner can normally be reached on M-Th, 7:30am-5:00pm est.; alternate Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Nguyen can be reached on 571-272-4491. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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DJ

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10/16/06

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GEORGE NGUYEN
SUPERVISORY AUDIT EXAMINER

SPE
10/16/06.